

IN THE CLAIMS:**1-15. Canceled**

16. (Currently Amended) A sub-micron MOS transistor comprising:

a substrate; and

an active region, including a gate region having a length of less than one micron; a source region including a LDD source region; and a drain region including a LDD drain region; wherein the ion concentration in said source region and in said drain region is between about $1 \cdot 10^{20}$ cm $^{-3}$ to $1 \cdot 10^{21}$ cm $^{-3}$, and wherein the ion concentration in said LDD source region and in said LDD drain region is between about $1 \cdot 10^{19}$ $5 \cdot 10^{18}$ cm $^{-3}$ to $5 \cdot 10^{19}$ cm $^{-3}$.

17. (Original) The MOS transistor of claim 16 which further includes an insulating oxide layer thereover and a source electrode, a gate electrode and a drain electrode.

18. (New) A sub-micron MOS transistor comprising:

a substrate; and

an active region, including a gate region having a length of about 100 nanometres; a source region including a LDD source region; and a drain region including a LDD drain region; wherein the ion concentration in said source region and in said drain region is between about $1 \cdot 10^{20}$ cm $^{-3}$ to $1 \cdot 10^{21}$ cm $^{-3}$, and wherein the ion concentration in said LDD source region and in said LDD drain region is between about $5 \cdot 10^{18}$ cm $^{-3}$ to $5 \cdot 10^{19}$ cm $^{-3}$.

19. (New) The MOS transistor of claim 18 further comprising:

- a gate oxide layer overlying the active region;
- a source electrode;
- a gate electrode; and
- a drain electrode.

20. (New) A sub-micron MOS transistor comprising:

a substrate;
an active region, including a gate region having a length of less than one micron; a source region including a LDD source region; and a drain region including a LDD drain region; wherein the ion concentration in said source region and in said drain region is between about $1 \cdot 10^{20} \text{ cm}^{-3}$ to $1 \cdot 10^{21} \text{ cm}^{-3}$, and wherein the ion concentration in said LDD source region and in said LDD drain region is between about $5 \cdot 10^{18} \text{ cm}^{-3}$ to $5 \cdot 10^{19} \text{ cm}^{-3}$; and

a gate oxide layer overlying the gate region having a length about twice as long as the gate region length.

21. (New) The MOS transistor of claim 20 further comprising:

- a source electrode;
- a drain electrode; and
- a gate electrode having a length about half the length of the gate oxide layer.